REMARKS

In the June 19, 2003 Office Action, the Examiner acknowledged the election of the Group I claims by the Applicants, examined claims 1, 8-13, 16-20, 21, 37, 41, 43, 45, 46, 48-50, 52, and 54, and withdrew claims 2-7, 14, 15, 22-36, 38-40, 42, 44, 47, 51, 53, and 55-63 from further consideration as being drawn to a non-elected invention not dependent on an allowable linking claim.

The Examiner rejected claims 1, 8-11, 13, 37, 43, and 45 under 35 USC 102(b) as anticipated by Duguay (US Patent 5,671,304), rejected claims 16-20, 21, 41, 46, and 54 as unpatentable over Duguay in view of Paniccia (US Patent 5,671,304), and rejected claim 12 under 35 USC 103(a) as unpatentable over Duguay and in view of Solgaard (US Patent 6,097,859). The Examiner also indicated that claims 48-50 were objected to and would be allowable if rewritten in independent form. In response thereto, the applicants have amended claims 1, 37, 46, 47, 50, 51 and 52. New claim 64 has been added. Claims 1 - 64 remain at issue.

The attorney for the applicants has listed the status of the non-elected claims 2-7, 14, 15, 22-36, 38-40, 42, 44, 47, 51, 53 and 55-63 in the Amendments to the Claims as "original" since they each depend on an examined, elected, independent claim.

The present invention is directed to an all optical switching matrix that is configured to switch demultiplexed lambda signals to output fibers without the need to convert the lambda signals to the electrical domain and then back to the optical domain. In contrast, Duguay teaches a switch that requires the repeated conversion of the input optical signals into electrical signals and then back to optical signals.

Specifically, as described in Column 6 lines 17-34 and illustrated in Figure 2 of Duguay, the colliminated optical signals 13 are received by an array of photo diodes 17 on a first "optoelectronic micro-repeater" array A. Each of the photo diodes 17 is responsible for generating an electrical signal having a magnitude corresponding to the "instantaneous power" of the received optical signal. The optoelectric micro-repeater array A also includes an array of tunable VCSEL laser diodes 18, each corresponding to one of the photo diodes 17 on the array. The VCSEL laser diodes 18 in turn are responsible for converting the electrical signals from the photo diodes 17 back to optical signals. The conversion of the optical signals to electrical signals

and then back to optical occurs at each of the subsequent micro-repeater arrays B, C and D respectively. Diffraction elements 15, 20, 30, 40 and 50 are provided between each of the optoelectronic micro-repeater arrays A, B, C and D to perform the switching function.

Figure 3 of Duguay similarly shows micro-repeater array B with diodes 27 and VCSEL lasers 28 between two diffraction gratings 20, 30.

Claim 1 as amended defines, among other elements, an optical switching matrix that is configured to switch the demultiplexed lambda signals in the optical domain from the first stack of substrates to the output fibers without the need to convert the lambda signals to the electrical domain. In contrast as described in detail above, Duguay teaches a switch that requires the repeated conversion of the input optical signals to electrical signals and then back to optical signals. Claim 1 is therefore allowable.

Although patentable in their own right, claims 2 through 36 are allowable based on their dependency on claim 1.

Claims 37-45 and 52-64 are allowable for essentially the same reasons as provided above.

Claim 46 was rejected as obvious over the combination of Duguay and Paniccia. Claim 46 is directed to a method for aligning a stack of substrates that are each capable of demultiplexing input lambda signals. The method includes the positioning of the stack of substrates until the maximum signal power of the demultiplexed output signals is measured and then adhering the substrates together. In contrast, Paniccia is directed to the alignment of the input and output fibers on a single semiconductor substrate. See Column 21 lines 24-28.

Specifically, as illustrated in figure 1 and described in detail in Column 3, lines 20-33, the optical processing element 101 of Paniccia includes an optical switch 134 made up of an array of trench capacitors to selectively direct an optical beam 111 to one of a plurality of output ports 151A-151D. A plurality of sensors 158, 160, 162, 164, 166, 168A, 168B, 168C and 168D are provided around the optical paths of the output ports 151A-151D respectively. The sensors are used to test and correct for misalignment of the optical beam 111 at the output ports.

Paniccia, either alone or in combination with Duguay, fails to teach or suggest the alignment of a stack of substrates by positioning the substrates, measuring the intensity of the measured lambda signals at the outputs of the substrates, and adhering the substrates when the maximum signal power is measured. Claim 46 is therefore patentable. Claims 47-51, although patentable in their own right, are also allowable based on their dependency on claim 46.

In view of the foregoing, it is respectfully submitted that all pending claims are allowable. Should the Examiner believe that a further telephone conference would expedite the prosecution of this application, the undersigned can be reached at the telephone number set out below.

Respectfully submitted,
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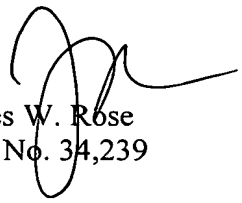

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